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Title : DIGITAL SIGNAL PROCESSING APPARATUS

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(57) [ABSTRACT]

[PROBLEM]

The object of the present invention is to provide the high resolution by rather small circuit size and increment of the power consumption.

[SOLUTION]

A digital signal processing apparatus for converting a noncontiguous signal, which is sampled by a predetermined frequency  $ck$ , comprises dither signal generating means for generating a dither signal having the same frequency as that of this noncontiguous signal, analog-digital converting means; and digital integral means. After this dither signal is added to this noncontiguous signal, this noncontiguous signal is converted to a digital signal by using a clock signal of a frequency  $nck$ , which is  $n$  ( $n$  is an integer not less than 2) times as many as the frequency of this noncontiguous signal. At the same time, a digital signal, which is obtained on the output side of this analog-digital converting means, is integrated  $n$  times by this digital integral means.

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Alternatively, a reference numeral 6 denotes a dither signal generating circuit. According to the present embodiment, as shown in FIG. 2C, this dither signal is defined  
5 as a jagged wave signal 6a having the same frequency as that of a noncontiguous signal 2a shown in FIG. 2B. A level of a peak to peak of this jagged wave signal 6a is defined as  $3/4$  level of one quantization level (LSB) of analog-digital converting circuit 8, which will be described later.

10 FIG. 1 is a constitutional view for illustrating an embodiment of a digital signal processing apparatus according to the present invention.

FIG. 2 is a diagrammatic view for explaining the present  
15 invention.

FIG. 1

3: CLOCK GENERATION

4: DIVIDER

20 6: DITHER SIGNAL GENERATION

9A: ADDER

9B: LATCH

10: LATCH